






**HOLLOW GLASS SPHERES**

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(56) Documents cited by ISA  
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418-421, 408-418**

(58) Field of search by ISA  
**US 501/33,39,57,58,59,63,66,67,68,69,70,72.**

(54) **Hollow glass spheres**

(57) Hollow glass spheres having average densities of approximately 10 grams/cc to approximately 2.0 grams/cc are prepared by heating solid glass particles. The glass spheres consist essentially of the following ingredients in the following amounts stated as weight percentages: SiO<sub>2</sub> (50 to 57 %); R<sub>2</sub>O (2 to 15 %); B<sub>2</sub>O<sub>3</sub> (0 to 20 %); S (.05 to 1.5 %); RO (2 to 25%); RO<sub>2</sub> (other than SiO<sub>2</sub>) (0 to 5 %); R<sub>2</sub>O<sub>3</sub> (other than B<sub>2</sub>O<sub>3</sub>) (0 to 10 %); R<sub>2</sub>O<sub>5</sub> (0 to 5 %); and F (0 to 5 %). R represents a metal or an element like phosphorous which combines with oxygen in glass. The sizes of the hollow glass spheres are selected to produce a maximum average strength for a desired average density.